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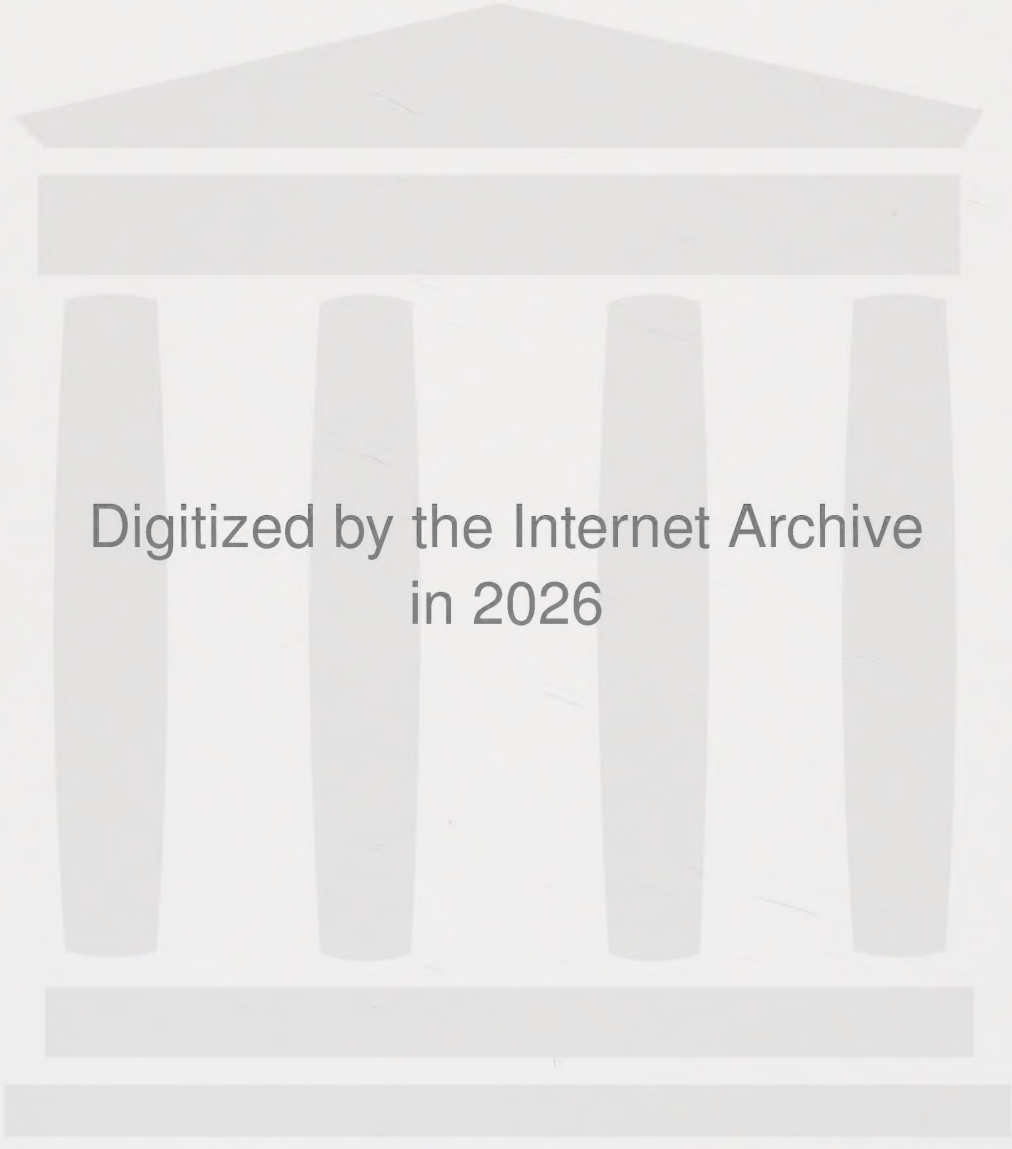
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RELAXATION AND ITS CLINICAL APPLICATIONS

Summary

Michael Ben Menachem

The present doctoral thesis intended to elucidate the concept Relaxation and its use in clinical practice.
The reports [x] within the framework of the thesis can be divided into two major areas:

A general overview of the concept of relaxation, and the development and testing of a new model.

"Relaxation. A literature survey and an attempt to build a new model" (Report vol. 2, no. 9, 1977).
"Relaxation response in Adolescence. A comparative study" (Report vol. 2, no. 10, 1977).

I Clinical applications

The clinical reports deal with dysmenorrhea and tension headache, with an attempt to penetrate into the nature of these problems, to build relaxation therapy treatment programs and apply them experimentally. The reports, included in the second part of the thesis, were:

1. "Dysmenorrhea among High School Girls. A factor analytical study". Report vol. 2, no. 11, 1977.
2. "Treatment of Dysmenorrhea. A relaxation program with EMG bio-feedback training. A case study". Report vol. 1, no. 14, 1976.
3. "Treatment of Dysmenorrhea. A relaxation therapy program". Report vol. 3, no. 2, 1978.
4. "Treatment of Dysmenorrhea. A pharmacological approach. A controlled study using a prostaglandin inhibitor (Brufen®) and placebo". Report vol. 2, no. 12, 1977.
5. "Treatment of Tension Headache. A relaxation therapy program". Report vol. 2, no. 1, 1977.

The reports vol. 2, no. 11 and vol. 2, no. 12, 1977 were written in collaboration with Kristina Edström who was responsible for parts of the literature surveys.

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x) The reports cited appeared in the series of REPORTS FROM THE DEPARTMENT OF APPLIED PSYCHOLOGY, University of Göteborg, Sweden.

The overview of relaxation and the development of a new model

The first study in this area is: "Relaxation. A literature survey and an attempt to build a new model" (Report vol. 2, no. 9, 1977). The concept, relaxation, frequently used in psychological literature, has a variety of definitions. Therefore, one purpose of this study was to review what could be found in the scientific literature about relaxation. The second aim of the study was to clarify how the different approaches to relaxation developed, in what respect these approaches differed from each other, and in what ways they were similar. The third aim was to investigate how relaxation can be used in every day life (school setting) and for clinical purposes.

The report also presents a new model of relaxation, the S-O-R-model.

After reviewing the literature, it became evident that the majority of scientists working with the concept relaxation are "stimulus oriented". This means that they describe techniques that elicit relaxation. Recently, however, authors have also been interested in the "output (R)", calling it the "relaxation response", "altered state of consciousness", etc. Only a few authors have been interested in individual differences, the third part of the process, namely, the organism (O). In other words, how feelings, expectations, motivation, etc. can influence the relaxation response (R).

The S-O-R model of relaxation, which is presented in the above mentioned paper, attempts to utilize all three elements of relaxation.

The literature survey clearly shows that despite differences in historical, religious and cultural backgrounds of the techniques, they have certain similarities.

The "S" side of the model contains three major elements:

1) Restricting stimulus inflow
2) Restricting body movements
3) Instruction (introduction) or "mental device", common for all the techniques which were studied.

The O-part of the model contains the knowledge, experience and expectation of relaxation, i.e. the individual´s motivation to participate in a relaxation exercise.

The R (response) side is the "relaxation response" of the individual. This is an operational definition of relaxation which is measured by psychological or/and physiological means.

The second study, "Relaxation Response in Adolescence"(Report vol. 2, no. 10, 1977),tried to elucidate experimentally the idea developed in the first study. Another purpose of this study was to investigate the possibility of using relaxation practically in the school setting.
303 high-school students participated. The main question here was whether the type of relaxation technique influenced the Ss´ relaxation response or not.

Four experimental groups received two different relaxation techniques and two different introductions (mental devices). The techniques used were two well known ones, namely Jacobson´s,[x] Progressive Relaxation (1929, 1970) (R_1) and Meares´s,[xx] "The Atavistic Autohypnotic Meditation Exercise" (1962, 1973) (R_2). The two methods, seemingly very different, (R_1 works mainly with muscle movements and R_2 works mainly with suggestions) contained, nevertheless, the basic S-O elements of relaxation.

The two mental devices used were: 1) I1: an introduction with positive suggestions about relaxation and 2) I2: a neutral scientific type of introduction about relaxation. The author´s assumption was that there would not be any differences between the experimental groups.

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x) See References in Report vol. 2, no. 10, 1977.
xx)

On the basis of the results it seems to be reasonable to conclude that the relaxation response is not determined by the kind of relaxation technique used, but is rather the result of a combination of the (S-O) elements essential to elicit the relaxation response.

The study also helped to elucidate a few crucial questions connected with relaxation in the high-school setting. It became evident that a lengthy relaxation training is not necessary for high-school students, and that the number of sessions needed is far less than fifteen. The length of a relaxation exercise (five minutes), which was given during gym lessons, seems adequate. Most of the students experienced relaxation positively. Both the muscular and mental aspects of relaxation were emphasized by the students. The electromyographic findings of the study indicate that the psychologically measured relaxation responses are connected to physiological changes.

There is a major consensus among researchers in this area that there is a need for relaxation response in everyday life, that the individual needs a couple of resting periods without "cognitive involvments" daily in order to cope with the tremendous inflow of stimuli that life presents to the individual. Already in the school setting it seems to be welcomed by the pupils to cope with the stressful school schedule.
Can we go further? Can we use relaxation clinically to attack psychological or somatical problems? Current research says, Yes. Different kinds of relaxation techniques have been applied to different psychological and somatical problems. The assumption in this thesis is however that relaxation is a useful tool, but it is of minor importance what technique is used as long as it contains the necessary elements to elicit the relaxation response.

EMG bio-feedback, hypnotic muscular relaxation procedure, and muscular relaxation were chosen as tools for three different clinical studies undertaken by the author.

Clinical applications

In the first clinical study (Report vol. 1, no.14,1976, Treatment of Dysmenorrhea. Relaxation Therapy with EMG Bio-feedback), EMG bio-feedback was utilized in treating a 19 year old patient with severe dysmenorrhea. The subject learned relaxation (lowering of EMG level) within a very short period of time, and at the same time a clear symptom relief occurred in respect to her dysmenorrhea complaints. After a six months control the patient was still feeling fine and experienced only minor discomfort in connection to menstruation. The correlation between relaxation training and symptom relief was discussed in the study.

Because of the encouraging results of the above mentioned study, and because of the amount of high-school girls suffering from dysmenorrhea (Report vol.2, no.11, 1977, Dysmenorrhea among High-School Girls. A factor analytical study), two further treatment-programs were undertaken. The first study (Report vol.3, no.2, 1978, Treatment of Dysmenorrhea. A Relaxation Therapy Program) used a muscular relaxation program with adequate suggestions. 12 girls were selected on a random basis from a pool of 46 girls who signed up for treatment of dysmenorrhea. 10 girls completed the experiment. The Ss served as their own controls. The suggestions given intended to increase knowledge and understanding of the process of menstruation among the subjects.

A self-judgement sheet using common dysmenorrhea symptoms was administered after three consecutive menstrual periods. The scores of the self-judgement sheet on the first and on the third measurements were compared and statistically evaluated.

The results show that the subjects diminished their complaints of dysmenorrhea on all the 13 symptoms, of which significantly

"cramps" and "nausea" on the 1 % level and "difficulty to concentrate", "unambitious" and "being irritable" significantly on the 0,5 % level.

The second simultaneously conducted therapy program concerning dysmenorrhea (Report vol. 2, no. 12, 1977. Treatment of Dysmenorrhea. A pharmacological approach using a prostaglandin inhibitor Brufen® and a placebo. A controlled study) was based on the assumption that dysmenorrhea is the result of hormonal changes, and therefore the adequate treatment should be a hormonal one.

24 high-school aged girls served as Ss in the study, randomly selected from a pool of 46 girls suffering from dysmenorrhea. The investigation was designed as a double-blind study. Because the E did not know which Ss received the active drug and which Ss received placebo, the Ss were sorted into an experimental and a placebo group only after the completion of the experiment.

Seven of the initial 24 Ss discontinued the treatment. Nine Ss from the experimental group and eight Ss from the placebo group completed the study.

Self judgement sheets were administered and statistically evaluated in the same manner as in the relaxation treatment study. The results indicate a higher symptom relief in the experimental group, although not as clearly as with the relaxation treatment. Comparing the symptom relief of the 10 Ss receiving relaxation treatment and the nine Ss receiving Brufen®, a clear advantage in favour of relaxation treatment can be noted.

The next study surveyed here intended to use relaxation therapy with high-school age pupils suffering from tension headache. (Report vol. 2, no. 1, 1977. The Treatment of Tension Headache. A relaxation therapy program). The relaxation technique used in this study was identical with the one used with dysmenorrhea patients, but also contained hypnotical

elements, (though containing all the essential elements needed to elicit the relaxation response). The suggestions given to the Ss included the character of pain, pain related to tension, the explanation of the "pain spiral", and relaxation related to pain. 694 high-school aged pupils participated in a survey on tension headache. The results of the survey show that 38 % of the boys and 53 % of the girls reported having headaches regularly. The most frequently reported area as the focus of the headaches was the forehead. Stress and general tiredness after a hard school day seemed to be the most frequent source of headache. Ten pupils suffering from severe tension headache volunteered to participate in the treatment program.

The results of the treatment were evaluated by daily reports, a self-rating scale and electromyographic measurement. No significant change in headache intensity was achieved according to the daily reports. Decrease in headache intensity in general was noted according to the self-rating scale. These improvements were stable after a six month follow-up. Four of the six Ss (Only six of the Ss had pre- and post-EMG measurements) lowered their muscular tension during therapy. Seven of the ten Ss significantly decreased their use of medicine during the experiment, although there were no suggestions given concerning medication.

There is one more report that is included, i.e. Report vol.2, no. 11, 1977. Dysmenorrhea among High-School Girls. A factor analytical study, which though not a part of the study on relaxation served as the basis for the three clinical studies mentioned here. The primary aim of the study was to investigate the frequency, intensity and nature of dysmenorrhea among high-school girls, as well as how dysmenorrhea influences scholastic achievement and school absence. The second aim of the study was to construct a simple diagnostical tool to be used in future treatment procedures. 413 high-school

aged girls participated in the study. A questionnaire based on the Moos (1968)[x] study was worked out for the investigation. 17 dysmenorrhea symptoms were intercorrelated and factor analysed. The descriptive analysis showed that symptoms like "irritated", "tiredness", "depressed" and "cramps" were very common among the Ss. 84,6 % of the girls stayed at home occasionally during the first day of their periods. 10,9 % of the girls stayed at home because of their menstruational discomfort every month. 45,7 % of the Ss felt that their school achievement was worse during their periods. The factor analysis of the symptoms located four factors important in dysmenorrhea. These were: 1.) psychological insufficience (irritated, depressed etc.) 2.) muscular factors (muscle-ache, shaky etc.) 3.) cramp factor (cramps, restless etc.) and 4.) vitality factor (burst of energy, excitement).

The somatical symptoms included in the study were present either as short term experience of pain or as discomfort of a longer lasting character (factors no. 2 resp. no. 3).

It could be a task for further research to find out what kind of menstruational discomfort could be most prosperously treated with relaxation therapy.

SUMMARY

Reviewing the findings of the present series of articles, we can make a comparison between what was known about relaxation and its clinical application before and what was gained by undertaking this study.

The first finding is that there are basic similarities between all the investigated techniques despite their historical, cultural and religious backgrounds. The S-O-R model helps to view the procedure of relaxation in clear and simple manner. The study showed two basic elements of the S-side of the model, namely restricted body movements and restricted stimulus inflow. The roll of

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x) See References in the report.

the third part of the S side of the model, the introduction, which was also assumed to be essential in eliciting the relaxation response, needs further investigation. There are techniques which characterize instruction as a part of the restricted stimulus inflow (mental device). There are also techniques as hypnosis which use introduction (induction) to tell the individual what type of experience is expected during a relaxation (hypnotic) procedure.

The introductions used by the author were of the hypnotic type. In this respect the Introduction didn´t show its power in eliciting the relaxation response. In summary, the author´s opinion is that the concept, Introduction, should be used rather as "mental device" or as a part of the "restricted stimulus inflow", - meaning monotonous, verbal stimulation - than an introduction explaining what kind of experience is expected of the individual.

The O-part of the model, the individual´s expectancy, knowledge, motivation, and previous experience seems to be an important element in experiencing relaxation. It also emphasizes the need of individualization in relaxation programs

The R-part of the model contains measurements of the relaxation response. The study showed that there is a positive correlation between psychological and physiological (in our case, electromyography) measurements of relaxation. If this is the case, then the more reliable and repeatable physiological measurement would be the method of choice to be used with further studies of the relaxation response.

However, for physiologically measurable relaxation, the time space needed is considerably shorter than for the environmentally motivated daily "resting periods". In other words, to reach a physiologically measurable "good relaxation", an approximately five minute relaxation program is satisfactory, while using relaxation as "daily resting periods" as part

of the school schedule, etc., a 15-20 minute relaxation session once or twice a day is to be preferred.

The study also showed that the learning of relaxation is considerably shorter than it was estimated. One to five training sessions seem to be adequate in order to reach a maximal (physiologically measured) relaxation for the individual.

The second part of the study, which used three different relaxation techniques as therapeutic aids for various psychosomatical disorders, showed that relaxation was an attractive (and many times more effective than medication) tool in the clinical practice. It has been shown that the kind of relaxation technique used did not play a major part in the success of the treatment programs.

In the western world, where we lack a historical, cultural and religious background of relaxation, there is a high degree of interest in new relaxation methods. The present study showed that the essential elements of the relaxation techniques which were studied were similar in many ways. This means that the development of a standardized relaxation technique, containing restricted body movements and restricted stimulus inflow with a "mental device", attention paid to the individual differences, and a standardized physiological and/or psychological measurement, could be developed into an internationally useful relaxation procedure.

Such a standardized procedure would stimulate further research in this area, and it would raise the reliability and validity of relaxation studies. By making meaningful comparisons, the use of relaxation could be more thoroughly investigated also in the clinical sphere.

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